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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/918,167	07/30/2001	Leslie G. Fritzemeier	05770-157001/ AMSC-569	2120
8076	7590	10/12/2004	EXAMINER	
LAWRENCE BERKELEY NATIONAL LABORATORY ONE CYCLOTRON ROAD, MAIL STOP 90B UNIVERSITY OF CALIFORNIA BERKELEY, CA 94720			PADGETT, MARIANNE L	
			ART UNIT	PAPER NUMBER
			1762	

DATE MAILED: 10/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/918,167

Applicant(s)

FRITZEMEIER ET AL.

Examiner

Marianne L. Padgett

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 5/27/04 & 1/15/04.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1-13 and 15-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 and 15-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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1. Applicants' amendment to the specification and to the abstract (labeled on p. 2 of the 5/27/04 response as p.29), have corrected problems noted on p.2-3 of the action mailed 7/23/03 (paper # 5).

Applicants' discussion (1/15/05 response/remarks) of their reading of the meaning of claims 9 and 22 are considered to provide file wrapper estoppel to the meaning of the claims, and clear up any potential confusion. With respect to claim 15, discussed on p. 12, applicant's assertion on the last 4 lines for the intended meaning of this claim is logical, assuming "two claims are perpendicular...." was a typographical error, suppose to read --two planes....--, hence also may be considered to provide file wrapper estoppel.

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out

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the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1, 6, 8-9, 13 and 16-17 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Russo et al (5,432,151), as applied in section 6 of paper # 5, mailed 7/23/03.

Applicant's arguments with respect to Russo et al, are reading the claims more narrowly than necessitated by the claim open language, since "environment comprising a reactive species" (emphasis added) is inclusive of one such as in Russo et al that supplies both vapor and oxygen to deposit a surface textured as claimed. Note the initial surface before any deposition has the claimed first chemical composition, and the deposited surface has the claimed biaxially texturing and second chemical composition. Deposition is clearly a method of changing a surface's composition, and NOTHING in the present claim language, especially considering the use of "comprising" excluded such as a means. If deposition was necessarily excluded from the means for causing the formation of the 2nd composition, the examiner would agree that Russo et al no longer read on the claimed process.

4. Claims 2-5 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Russo et al as applied in section 7 of paper # 5.

5. Claims 10, 18-22 and 25-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Russo et al as applied to claims 1-6, 8-9, 13 and 15-17 above, and further in view of Do et al (6,190,752B) or Jiang et al (6,498,549 B1) as applied in section of paper # 5.

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6. While Ouhata et al (5,246,741) change the chemical composition of surfaces by ion means in a fashion consistent with applicant's apparent intent as indicated by their arguments (as opposed to deposition as in Russo et al), they do not cause biaxial texturing with their process, hence applicant's amendment have removed the Ouhata rejections.

Similarly, Fossum et al causes a change in morphology (i.e. texturing) and composition via an bombardment, but the amendment required the texturing be biaxial, also removes the Fossum et al (4,776,925) rejections.

7. Copending case 09/918,395 is noted to be of interest as directed to biaxial ion beam texturing using multiple beams, however none of the claims therein necessitate any chemical change during the texturing (although it is not excluded), but a change from noncrystalline to cubic structure, not required by the present claim is required, hence the sets of claims are considered to be sufficiently distinct.

The Japanese reference to Yashuhiro et al (JP 07-065642) cited in copending (395), is of interest as having disclosure relating to those of Russo et al as, [0010] and [0029-33] of the machine translation teach ion assisted deposition using O₂ and inert gas mixed ion beams for analogous deposits, with teaching of interest on multiple beam usage and angle thereof.

8. Claims 1, 6 and 13 are rejected under 35 U.S.C. 102(a) as being clearly anticipated by Reade et al (2002/0073918 A1).

Claims 2-5, 7-12, 18, 20-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reade et al (918 A1).

Reade et al teach exposing a biaxially orientable film that may initially be amorphous including oxides or nitrides, such as cerium oxide, zirconia, titanium nitride, etc., to oblique

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particle beams, that may be ion beams (charged atoms or molecules) including noble gases, O₂ or N₂ or combinations, or “a component to be deposited into the substrate to be contacted” (emphasis added, and considered to read on implanting), where depositing zirconia (which comprises oxygen) into a yttrium oxide surface is given as an example, and clearly reads on changing the composition.

Reade et al (918 A1) does not provide a specific example of which ions bombard the suggested biaxially orientated surface of TiN, but given the explicit suggestions of O₂+Ar, or N₂+O₂, or He + O₂ and the suggestion of depositing components of the beam into the substrate surface, it would have been obvious to one of ordinary skill in the art that addition of an oxide component to suggested orientable nitride films is within the scope of Reade et al invention, hence would have been obvious for specifically suggested substrates of TiN to be biaxially oriented.

Note previous arguments for plural beams as applied above, would also have been applicable to Reade et al.

In Reade et al, particularly see the abstract; figures 1 & 2; [0022-24]; [0027]; [0032]; [0034]; [0043] and noting that [0054] suggest depth of effect with nucleating layer said to be 1 monolayer (about 0.5 nm) to 100nm.

9. Applicant's arguments filed 1/15/04 and 5/17/04, discussed above have been fully considered but they are not persuasive.

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to M L. Padgett whose telephone number is (571) 272-1425. The examiner can normally be reached on Monday-Friday about 8:30 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive Beck can be reached on (571) 272-1415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

M. L. Padgett/af
August 26, 2004
October 8, 2004



MARIANNE PADGETT
PRIMARY EXAMINER